

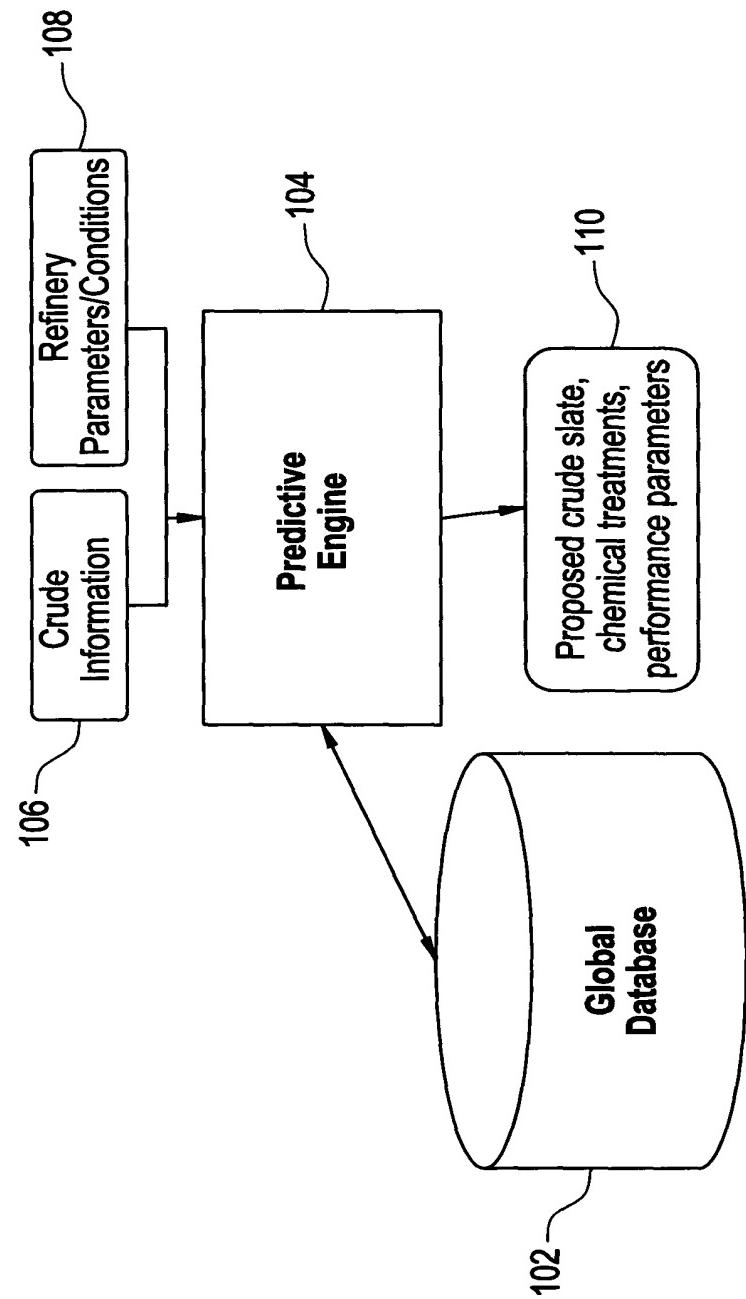
FIG. 1

FIG. 2

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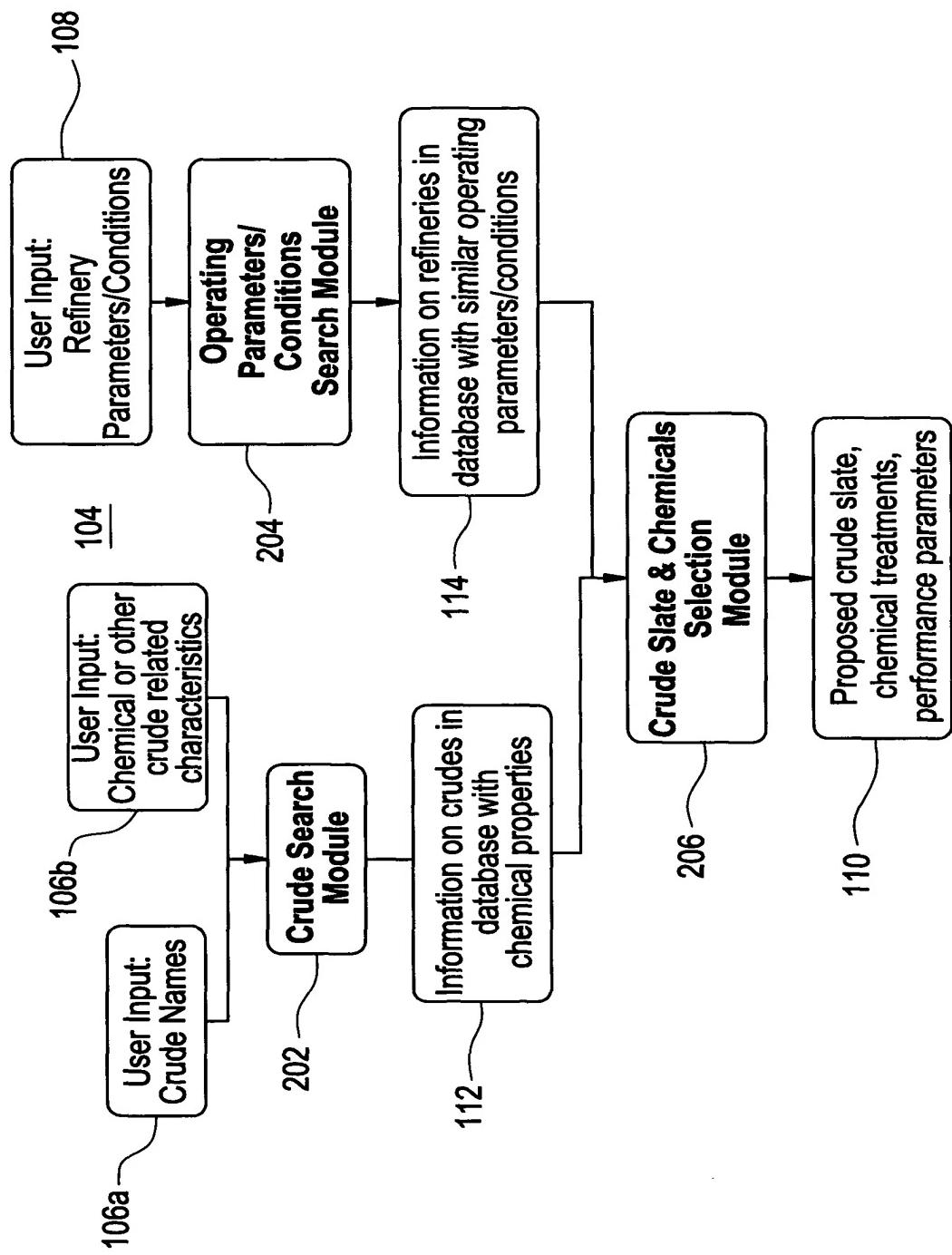


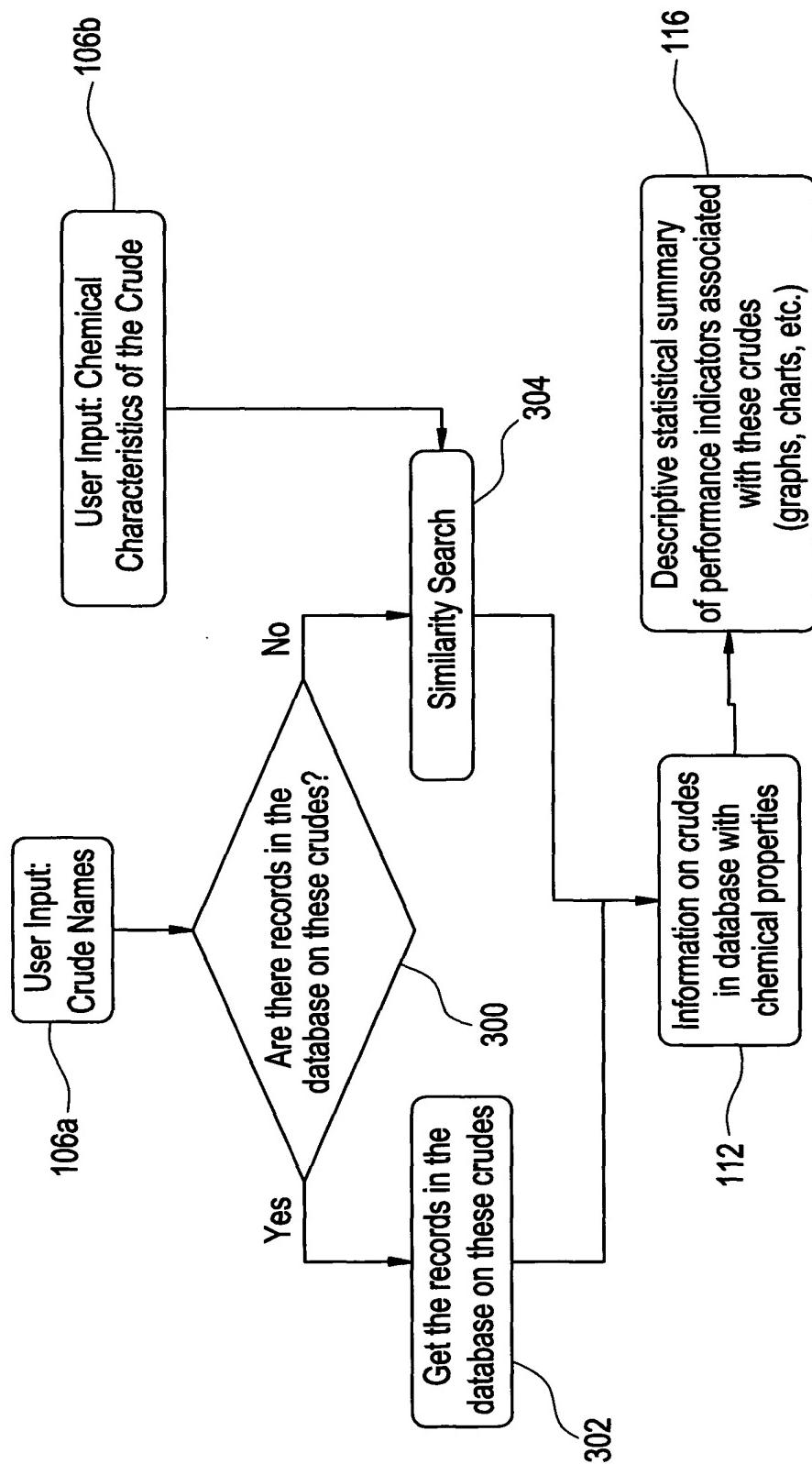
FIG. 3202

FIG. 4

204

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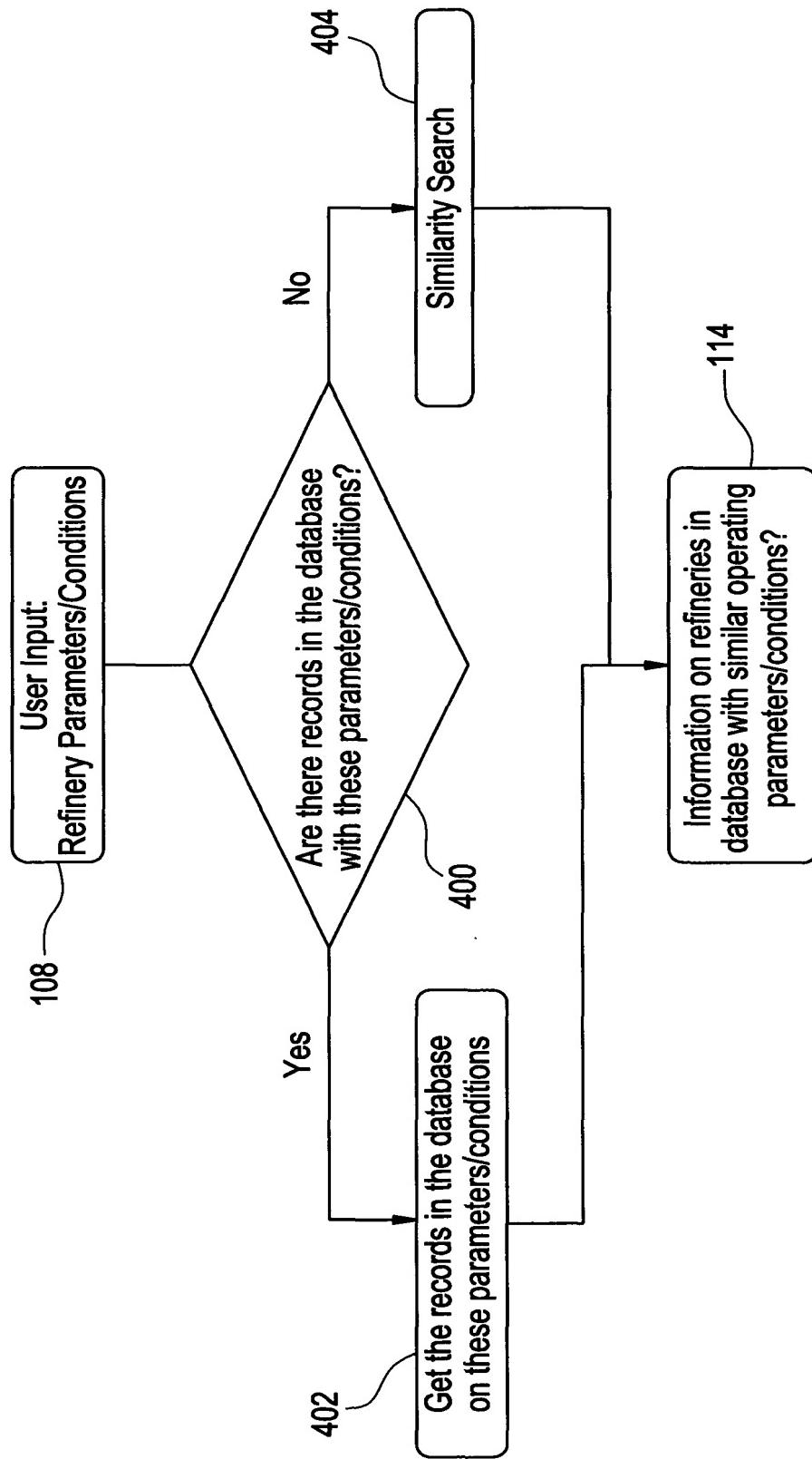


FIG. 5

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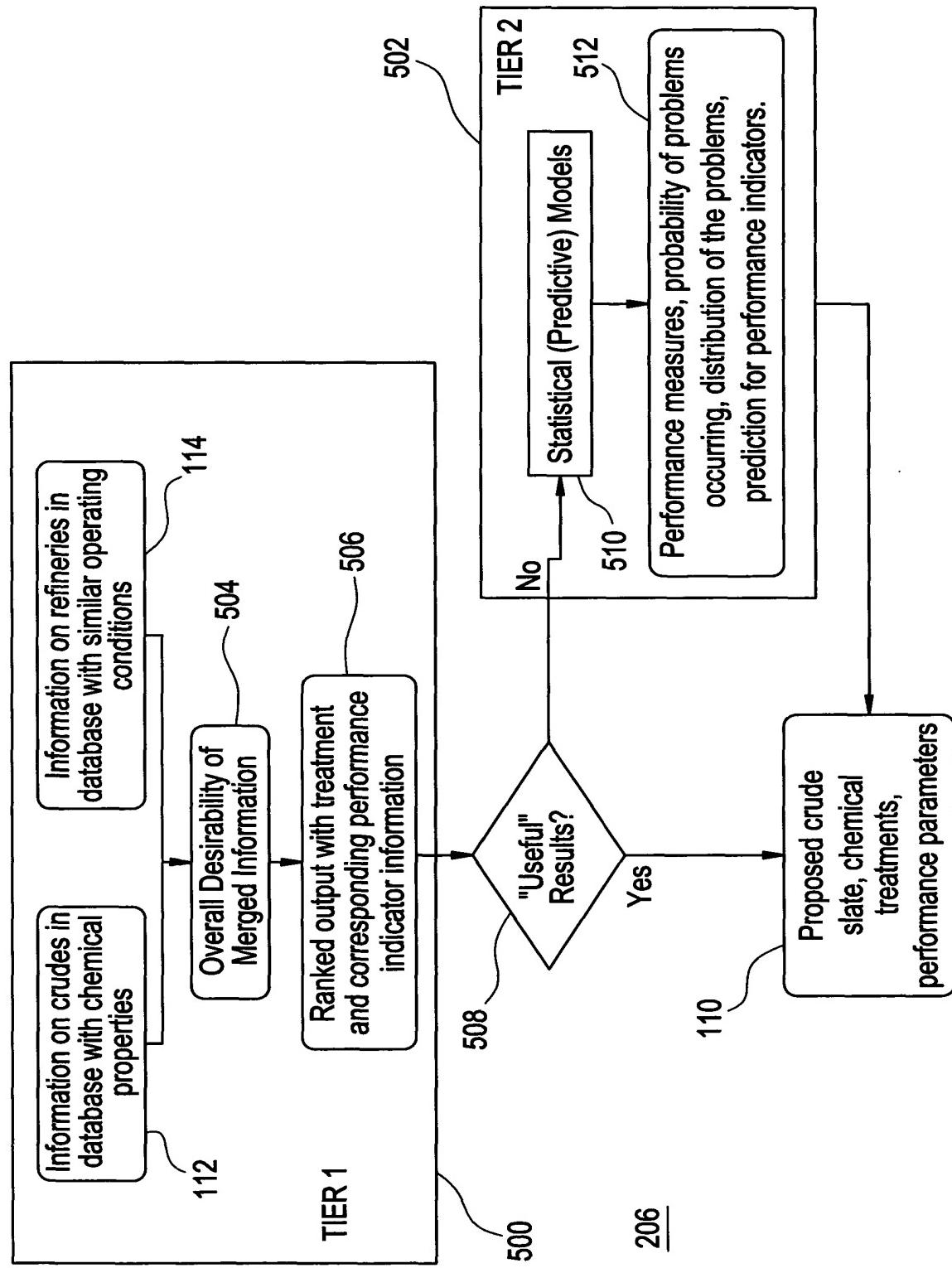


FIG. 6

Select crudes of interest within slate:

Crude Name	Percent of Slate?	Goal	Target	Imp.
ARAB EXTRA LIGHT	0 % - 100 % -	Target value ▶	9.50	5
ARAB MEDIUM	0 % - 50 % -	Maximize	0.50	5
ARAB HEAVY	0 % - 100 % --	Minimize	75.0	5
ARAB LIGHT	0 % - 100 % -	Stay within Range	15.0	5
		Target value ▶		
		Target value ▶		
		Target value ▶		
		Target value ▶		

The diagram illustrates the mapping of external labels to specific fields in the table. Arrows point from labels to the following table elements:

- 600 points to the first row of the table.
- 602 points to the second row of the table.
- 602a points to the third row of the table.
- 602b points to the fourth row of the table.
- 604 points to the fifth row of the table.
- 604a points to the sixth row of the table.
- 605 points to the seventh row of the table.
- 606 points to the eighth row of the table.

Select a Refinery/Unit		Select Refinery Operating Parameters of Interest																																																			
<input type="checkbox"/> RO0001 <input checked="" type="checkbox"/> Refinery Not in List		<table border="1"> <thead> <tr> <th>Include in Search</th> <th>Operating Parameter</th> <th>Imp.</th> <th>Current</th> <th>Units</th> <th>Historical Range</th> <th>Goal</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/></td> <td>Wash Water</td> <td>5</td> <td>1.0</td> <td>1=Yes 0=No</td> <td>0.0 - 1.0</td> <td><input type="button"/> Target value <input checked="" type="checkbox"/></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Raw BSW</td> <td>5</td> <td>0.025</td> <td></td> <td>0.0 - 1.45</td> <td><input type="button"/> Target value <input checked="" type="checkbox"/></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Raw Crude Salt Content</td> <td>5</td> <td>2.0</td> <td>lbs/1000BBL</td> <td>0.0 - 150.0</td> <td><input type="button"/> Target value <input checked="" type="checkbox"/></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Overhead Temp</td> <td>5</td> <td>249.5</td> <td>degrees C</td> <td>0.0 - 300.0</td> <td><input type="button"/> Target value <input checked="" type="checkbox"/></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Overhead Pressure</td> <td>5</td> <td>23.95</td> <td>psi</td> <td>0.0 - 35.0</td> <td><input type="button"/> Target value <input checked="" type="checkbox"/></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Overhead pH</td> <td>5</td> <td>5.7</td> <td>pH</td> <td>0.0 - 7.0</td> <td><input type="button"/> Target value <input checked="" type="checkbox"/></td> </tr> </tbody> </table>			Include in Search	Operating Parameter	Imp.	Current	Units	Historical Range	Goal	<input checked="" type="checkbox"/>	Wash Water	5	1.0	1=Yes 0=No	0.0 - 1.0	<input type="button"/> Target value <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Raw BSW	5	0.025		0.0 - 1.45	<input type="button"/> Target value <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Raw Crude Salt Content	5	2.0	lbs/1000BBL	0.0 - 150.0	<input type="button"/> Target value <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Overhead Temp	5	249.5	degrees C	0.0 - 300.0	<input type="button"/> Target value <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Overhead Pressure	5	23.95	psi	0.0 - 35.0	<input type="button"/> Target value <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Overhead pH	5	5.7	pH	0.0 - 7.0	<input type="button"/> Target value <input checked="" type="checkbox"/>
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700	702	711	704	706	708a	708b	708	710																																													

FIG. 7

FIG. 8

Score Results of Selected Crude States							
Select	Match	Slate Crudes	Overtake Exchanger Corrosion	Desalter Efficiency	Matching Score for Crude State	Matching Score for Operating Condition	Overall Score
○	<u>exact</u>	ARAB EXTRA LIGHT (0.0%) ARAB HEAVY (77.0%) ARAB LIGHT (14.0%) ARAB MEDIUM (0.0%)	14.5	0.875	.99	1.00	.99
○	<u>subset</u>	ARAB EXTRA LIGHT (0.0%) ARAB HEAVY (77.0%) ARAB LIGHT (14.0%) ARAB MEDIUM (0.0%) EDCENE (26.0%)	14.5	0.875	.99	1.00	.99

Score using Model Modify Criteria

FIG. 9A

Predictive Modeling User Input

Confirm Crude Slate:

Crude Name	Current %	Target %
ARAB EXTRA LIGHT	9.0	9.50
ARAB HEAVY	77.0	75.0
ARAB LIGHT	14.0	15.0
ARAB MEDIUM	0.0	0.50

TAN: * [0.25] 902

Responses

Response	Goal	LSV	USV	Target
Corrosion	Minimize	0 mpy	14.5 mpy	
SRE	Maximize	0.875 %	0.99 %	

904 904a 904b 904c 904d

FIG. 9B

Treatment Information

Desalter Treatments

Name	Value	Rate
		Oil Water
Primary Breaker	2w157	4.949599809 0.0
Reverse Breaker	n	0.0
Wetting Agent	2w801	0.949339988

Corrosion Treatments

Name	Value	Rate
Neutralizing Amine *	dm5503	5.0
Overhead Filmer	5kb	3.5
Tower Filmer	null	0.0

Ammonia Rate: * 0.0

* - denotes required fields to run example model

Get Predictions **Reset** **Back to Slates**

The diagram illustrates the flow of data from various input fields to specific callout numbers. Arrows point from the 'Ammonia Rate' field to callout 912, from the 'Tower Filmer' rate cell to callout 910, and from the 'Wetting Agent' rate cell to callout 908. Below the table, three buttons ('Get Predictions', 'Reset', 'Back to Slates') have arrows pointing down to them from callouts 914, 916, and 918 respectively.

FIG. 10

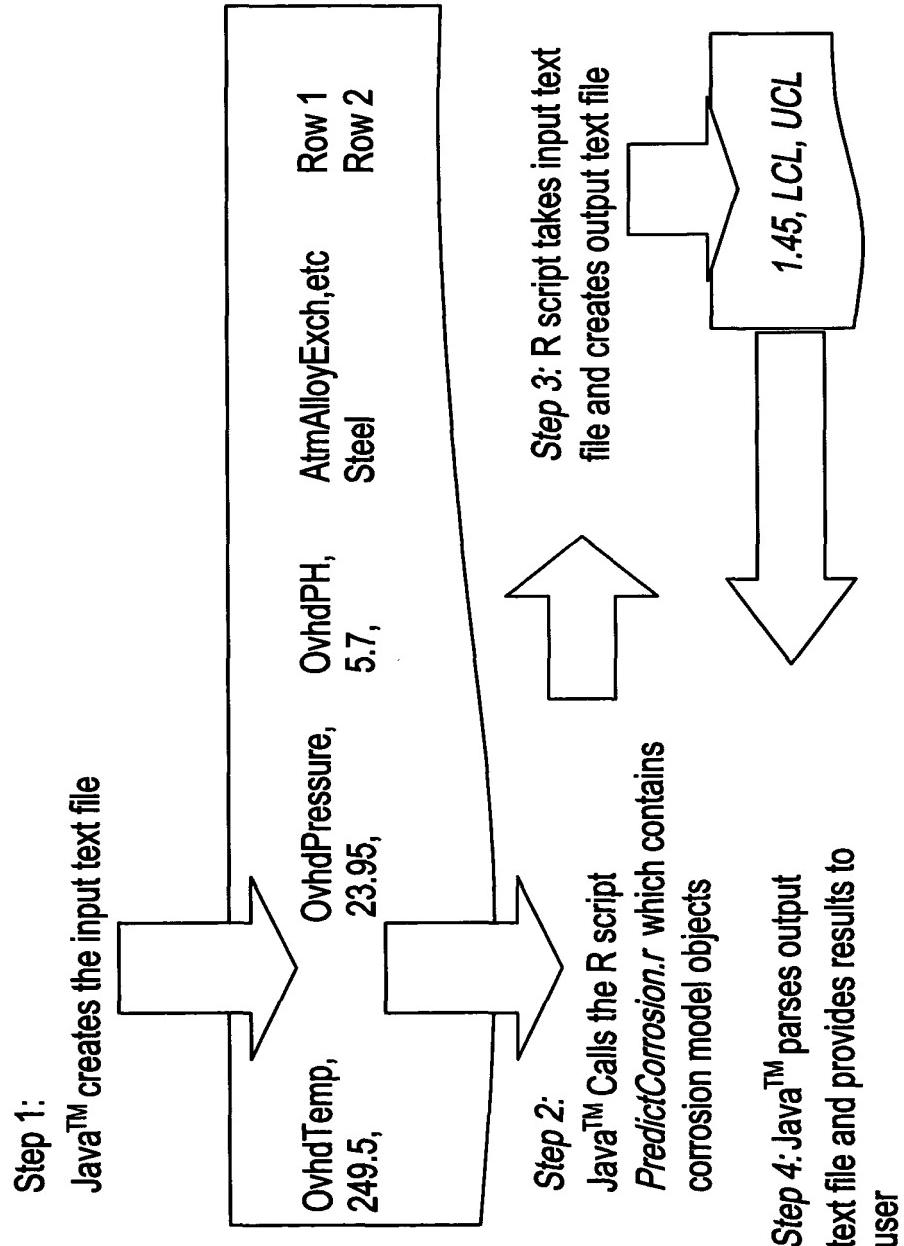


FIG. 11

Top 10 Predicted Value/Scores - mock-up only

Prediction Record	Slate Score	Treat Score	Operating Condition Score	Response - Corrosion	Response - SRE	Composite Score
1	.99	1	1.00	1.45		.99
2	.99	1	1.00	.46		.99
3	.99	1	1.00	.28		.99
4	.99	1	1.00	.66		.99
5	.99	1	1.00	.84		.99
6	.99	1	1.00	.77		.99
7	.99	1	1.00	.58		.99
8	.99	1	1.00	.86		.99
9	.99	1	1.00	.90		.99
10	.99	1	1.00	.85		.99

* Prediction 1 is calculated using model. Predictions 2 through 10 are simulated for demo purposes, but will be calculated in future.

[Back to Model Input](#)